

## Claims

1 1. A circuit to route signals, comprising:

2     A plurality of input pins to receive input signals;

3     A plurality of output pins to transmit output signals;

4     A plurality of connectors each wired to exactly one of the plurality of input pins and the

5     plurality of output pins;

6     A plurality of switches, each possessing three poles;

7     A first plurality of wires electrically connecting exactly one input pin to a first pole of

8     exactly one switch;

9         A second plurality of wires each electrically connecting exactly one output pin to a

10     second pole of exactly one switch;

11         A third plurality of wires each electrically connecting exactly one connector to the

12     common pole of exactly one switch;

13         A switch matrix to transmit signals from at least one of said input pins to at least one of

14     said output pin.

1 2. The circuit of claim 1, wherein the circuit is to be housed in a single frame.

1 3. The circuit of claim 1, wherein said circuit is to receive and transmit video signals.

1 4. The circuit of claim 1, wherein said circuit is to receive and transmit audio signals.

1 5. The circuit of claim 1, wherein said circuit is to receive and transmit data signals.

1 6. The method of claim 1, wherein said circuit has two connectors connected to each input  
2 pin in a loop-through configuration.

1 7. The method of claim 1, wherein said circuit has output pins that can be connected to more  
2 than one connector.

1 8. A method of selectively connecting one of a plurality of input receiving wires and one of  
2 a plurality of output transmitting wires to one of a plurality of selectable connectors in a signal  
3 routing circuit, the method comprising:  
4       retrieving data representing a number of non-selectable input connectors and non-  
5 selectable output connectors and selectable input/output connectors from the circuit;  
6       receiving data through an interface from a user representing a number of desired input  
7 connectors each to be connected to an input receiving wire;  
8       comparing said number of desired input connectors to the sum of said non-selectable  
9 input connectors and a plurality of selectable input/output connectors;  
10      repeating said receiving and comparing until the sum of said non-selectable input  
11 connectors and the plurality of selectable input/output connectors equals or exceeds the number  
12 of said desired input connectors;

13 calculating the number of available output connectors by adding the number of non-  
14 selectable input connectors, non-selectable output connectors, and selectable input/output  
15 connectors together and subtracting the number of desired input connectors therefrom;  
16 displaying the number of available output connectors and desired input connectors using  
17 a display mechanism;  
18 repeatedly connecting a selectable input/output connector to an input receiving wire until  
19 the sum of said non-selectable input connectors and the selectable input/output connectors  
20 connected to an input receiving wire equals the number of said desired input connectors;  
21 repeatedly connecting all selectable input/output connector not so connected to an input  
22 receiving wire to an output transmitting wire.

1 9. The method of claim 8, wherein said circuit receives and transmits video signals.

1 10. The method of claim 8, wherein said circuit receives and transmits audio signals.

1 11. The method of claim 8, wherein said circuit receives and transmits data signals.

1 12. The method of claim 8, wherein said circuit has two connectors connected to each input  
2 pin in a loop-through configuration.

1 13. The method of claim 8, wherein said circuit has output pins that may be connected to  
2 more than one connector.

1 14. A circuit routing signals, comprising:

2 a plurality of input pins to receive input signals;

3 a plurality of output pins to transmit output signals;

4 a plurality of connectors wired to exactly one of the plurality of input pins and one of the

5 plurality of output pins;

6 a switching apparatus;

7 a first plurality of wires each electrically connecting exactly one input pin to a first pole

8 of the switching apparatus;

9 a second plurality of wires each electrically connecting exactly one output pin to a second

10 pole of the switching apparatus;

11 a third plurality of wires each electrically connecting exactly one connector to a common

12 pole of the switching apparatus;

13 a matrix circuit to transmit signals in one of from a subset of the input pins to a subset of

14 the output pins, from a subset of the input pins to all of the output pins, and from all of the

15 input pins to a subset of the output pins.

1 15. A routing circuit comprising:

2 a crosspoint matrix having a plurality of input pins and output pins, said crosspoint matrix

3 connecting ones of said input pins to ones of said output pins;

4 at least one input connector connected to one of said output pins;

5 at least one output connector connected to one of said output pins;

6 at least one switchable connector connected to one of said input pins and output pins via a

7 switch.